

CLAIMS

1. A solid-state imaging apparatus comprising:

an energy ray sensitive region, being formed on a front surface side of a semiconductor substrate, having a plurality of photoelectric conversion portions that are arrayed two-dimensionally, and generating charges in response to the incidence of energy rays;

a plurality of transfer electrodes, each being disposed on the front surface side of the energy ray sensitive region with a first direction of the two-dimensional array as the longitudinal direction and transferring the charges in a second direction of the two-dimensional array; and

voltage dividing resistors, disposed in correspondence to the transfer electrodes and each dividing a DC output voltage from a DC power supply to generate a DC output potential and providing the DC output potential to the corresponding transfer electrode.

2. A solid-state imaging apparatus comprising:

an energy ray sensitive region, being formed on a front surface side of a semiconductor substrate, having a plurality of photoelectric conversion portions that are arrayed two-dimensionally, and generating charges in response to the incidence of energy rays; and

a plurality of transfer electrodes, each being disposed on the front surface side of the energy ray sensitive region with a first direction of the two-dimensional array as the longitudinal direction and transferring the charges in a second direction of the two-dimensional array,

wherein a predetermined potential is applied to each of the

plurality of transfer electrodes in such a manner that the potential formed under the plurality of transfer electrodes increases gradually in the charge transfer direction.

3. The solid-state imaging apparatus according to Claim 1 or 2,
5 further comprising: a charge accumulation portion, accumulating the charges, which have been transferred by the plurality of transfer electrodes, according to each set of the photoelectric conversion portions arrayed in the second direction and outputting the accumulated charges in a batch according to each set of the photoelectric conversion
10 portions; and

a charge outputting portion, inputting and then successively outputting the charges output from the charge accumulation portions according to each of the sets of the photoelectric conversion portions arrayed in the second direction.

15 4. A solid-state imaging apparatus comprising:

a set of transfer electrodes, disposed via an insulating layer on the front surface of a semiconductor substrate and aligned in a single direction, and

voltage dividing resistors that electrically connect the respective
20 transfer electrodes.

5. The solid-state imaging apparatus according to Claim 4, wherein the voltage dividing resistors divides a DC output voltage from a DC power supply.

6. The solid-state imaging apparatus according to Claim 4, further
25 comprising: a charge accumulation portion, accumulating the charges, which have been transferred by the set of the transfer electrodes, and

outputting the accumulated charges in a batch; and

a charge outputting portion, inputting and then successively outputting the charges output from the charge accumulation portions.